- The "pick and choose" rule (§ 51.809);
- The rural exemptions rule (§ 51.405);
- The FCC's authority under Section 208 to review and enforce agreements approved by state commissions (First Report and Order, ¶¶ 121-128);
- The rule requiring preexisting interconnection agreements that were negotiated before the enactment of the Act to be submitted for state commission approval (§ 51.303);
- The rule preempting any state policy that conflicts with an FCC regulation promulgated pursuant to Section 251 (First Report and Order ¶¶ 101-103, 180); and
- Portions of the FCC's unbundling rules (§§ 51.305(a)(4), 51.311(c), 51.315(c)-(f), and 51.317, and First Report and Order, ¶¶ 278, 281 (only to the extent that these provisions create a presumption that a network element must be unbundled if it is technically feasible to do so)).

The Court did not vacate the FCC Order in its entirety, and those portions of the FCC Order and rules that have not been vacated remain in force as valid regulations. In addition, the Eighth Circuit issued a subsequent Order on Petitions for Rehearing on October 14, 1997 clarifying its decision regarding the recombination or rebundling of unbundled network elements (which specifically vacated FCC Rule § 51.315(b-f)).

D. Statement of Proceedings

The Commission initiated this case in December 1996 in order to fully examine the costs for purposes of establishing rates associated with interconnection and unbundling of BellSouth's telecommunications services. BellSouth, AT&T and MCI submitted cost studies, and they and other parties submitted direct testimony, on April 30, 1997. Several prehearing conferences and workshops were conducted, and numerous data requests were served and answered by various parties. The Commission's Adversary Staff participated in the prehearing conferences and workshops and propounded several sets of data requests. Additionally, the parties were given the opportunity to conduct discovery depositions and availed themselves of that opportunity.

Supplemental, rebuttal, and surrebuttal testimony as well as revised and updated cost models and cost studies were subsequently submitted in this docket. The Commission conducted hearings September 15-19, 1997. All parties were given an opportunity to present testimony and cross-examine witnesses. Additionally, the prefiled testimony of several witnesses was admitted into evidence by stipulation of the parties. All the evidence of record and arguments have been reviewed and examined in detail.[5]

---

[5] Certain documents and other information filed in this case were considered by the source of the information to be a "trade secret" under Georgia law, O.C.G.A. § 10-1-761(4), and were treated in conformance with the Rules of the Commission governing such information. *See* Rule 515-3-1-.11 Trade Secrets (containing rules for asserting trade secret status, filing both under seal and with public disclosure versions, use of protective agreements, petitioning for access, and procedures for challenging trade secret

II. UNBUNDLED NETWORK ELEMENTS

A. Cost Study Methodology and Major Assumptions

The Commission stated in its initial Procedural and Scheduling Order that it would presume that the cost study methodology should be forward-looking, consistent with the Total Element Long Run Incremental Cost ("TELRIC") approach previously approved by this Commission in Dockets No. 6415-U/6537-U.[6] Therefore BellSouth was required to submit its filing using a TELRIC methodology. The Commission also recognized and stated that BellSouth (or any other party) may also submit - and was free to advocate - a different set of cost studies using a methodology different from TELRIC. BellSouth chose to submit one cost study (with several revisions and updates) that it labeled as using a TELRIC methodology.[7]

The only other cost study model submitted in the docket was the Hatfield model sponsored by AT&T and MCI, also labeled as using a TELRIC methodology. The primary difference between the two cost models was that BellSouth assumed its existing network configuration, while the Hatfield model uses a "scorched node" approach that assumes existing central (end) offices but essentially rebuilds the network using fully forward-looking configurations and assumptions. The second most substantial difference between the BellSouth cost study and the Hatfield model was BellSouth's application of a "Residual Recovery Requirement" ("RRR") factor to the unbundled loop and unbundled port rates. These two substantial differences between BellSouth and the Hatfield approach are discussed in subsequent subsections.

Generally, BellSouth performed cost studies for the following unbundled network elements: (1) unbundled local loops; (2) sub-loop unbundling; (3) unbundled local and tandem switching capabilities and local interconnection; (4) unbundled transport (interoffice and local channels, including shared transport and dedicated interoffice facilities) and local interconnection; (5) signaling

---

designations).

[6] *See* Order, December 6, 1996, Docket No. 7061-U, at 3 of 9.

[7] The Commission also required that any party submitting a cost study shall provide comprehensive and complete work papers that fully disclose and document the process underlying the development of each of its economic costs, including the documentation of all judgments and methods used to establish every specific assumption employed in each cost study. The work papers must clearly and logically present all data used in developing each cost estimate, and must be so comprehensive as to allow others initially unfamiliar with the studies to replicate the methodology and calculate equivalent or alternative results using equivalent or alternative assumptions. The work papers must be organized in such manner as to clearly identify and document all source data and assumptions, including investment, expense, and demand data and assumptions.

In addition, for each cost study, the party submitting the cost study was required to provide sensitivity analyses of study outputs to alternative input assumptions regarding the economic depreciation of facilities, the cost of capital, and fill factors and utilization assumptions.

network (common channel signaling - CCS7); (6) call-related databases and service management systems; (7) operations support systems ("OSS") functions; (8) operator functions; (9) directory assistance; (10) physical and virtual collocation; (11) service provider number portability (interim solutions); (12) dark fiber; and (13) access to poles, ducts, conduit, and rights-of-way. (Zarakas, Tr. 371.)

1. Existing Network Configuration v. "Scorched Node"

BellSouth's cost studies assumed the existence of its current wire centers and parts of its infrastructure, based on the premise that new telephone cables will be laid along the same roads and in the same rights-of-way as the current facilities are located. BellSouth then assumed the implementation of new technology, given this existing network configuration. (Caldwell, Tr. 442.) BellSouth modeled the network elements and used inputs from: (1) the Switching Cost Information System ("SCIS") model developed by Bell Communications Research, Inc. ("Bellcore") to establish switching costs; (2) various specialized price calculators; (3) a statistical sample of loops within the state; and (4) subject-matter experts with extensive expertise and knowledge about telecommunications in general and BellSouth's operations in particular. (Caldwell/Zarakas, Tr. 376-410.) The inputs from the various sources were used by BellSouth's "TELRIC Calculator©" to compute the cost of the UNEs.

The Hatfield model championed by AT&T and MCI uses a "scorched node" approach that assumes existing central (end) offices but essentially rebuilds the network using fully forward-looking configurations and assumptions. AT&T/MCI witness Wood argued that the scorched node approach is consistent with a forward-looking, long-run incremental cost methodology because in the long run, the network should be considered avoidable. In particular, AT&T and MCI argued that the structure of and inputs to the Hatfield Model 4.0 are appropriate because they adhere to four essential criteria: costs must be (1) long-run; (2) based on efficient use of least-cost, forward-looking technology currently available; (3) calculated assuming demand for the total quantity of the element being studied; and (4) based on the principle of cost-causation. (Wood, Supplemental/Rebuttal at 11.)

The Georgia Public Communications Association, Inc. ("GPCA") supported the use of the Hatfield Model Release 4.0, and urged rejection of the BellSouth model. The GPCA contended that BellSouth applied a distorted version of the FCC's TELRIC methodology in order to justify higher costs, primarily by allocating historic levels of overhead costs to its TELRIC results. By contrast, GPCA argued, Release 4.0 of the Hatfield Model satisfies the requirements for cost-based pricing in a competitive environment, using forward-looking methodology based on publicly available data. The GPCA added that its methodology creates competitively neutral and nondiscriminatory prices, and ensures that the UNEs are not subsidized by other service offerings or other customers of the incumbent LEC. (GPCA Brief at 1, 3.)

AT&T and MCI argued that the underlying logic of Hatfield Model 4.0 remains straightforward and understandable; that it applies generally-accepted engineering principles to

determine the amount of various network components required to meet a specified level and location of demand. The model assumes the location of existing wire centers, but otherwise calculates the least-cost, forward-looking cost of feeder, distribution, and other facilities (the "scorched node" approach). Applying user-adjustable cost data inputs, the model calculates a required level of investment. The level of investment is used to determine capital carrying costs and many operating expenses. It also contains a module that can be used to develop costs for universal service purposes. The net result is forward-looking prices for unbundled network elements intended to reflect the costs that an efficient provider which faces competition would incur to provide telecommunications services in the Georgia market. (AT&T Proposed Order at 11, citing Wood Direct at 29.)

MCI argued that the rates put forward by it and AT&T reflect truly forward-looking economic costs without reference to past Commission proceedings and thus are consistent with the 1996 Act and the FCC rules upheld by the Eighth Circuit, and will facilitate competition in Georgia's local exchange market. By contrast, MCI argued, BellSouth's rates are based on theories and cost models that incorporate embedded costs and rely on rate of return principles, and would continue the inefficiencies which result from monopoly markets. (MCI Reply Brief at 1-2.) MCI explained that the Hatfield Model used inputs that were highly specific to BellSouth's operating territory in Georgia, but were appropriately independent of BellSouth's embedded network and operations. MCI criticized BellSouth's cost studies as beginning with embedded or historical investments and network design, carrying forward the embedded characteristics of the network. MCI noted that BellSouth agreed during the hearings that in a valid long-run study, all costs are avoidable (Tr. 380-384), and argued that the BellSouth studies inappropriately applied a short-run assumption in which many embedded systems and work activity characteristics act as cost constraints. (MCI Brief & Proposed Order at 12.)

MCI also argued that the Hatfield Model is a fully "open" model which permits review and verification. MCI urged the Commission to base its decision on information that is part of the public record. MCI argued that the Hatfield Model's openness directly enhances the credibility of the model. The Hatfield Model has been subject to thorough cross examination in numerous regulatory proceedings; all detailed geographic and demographic data that the model uses can be viewed directly by the user; and it contains over 1,200 user-adjustable inputs that can be changed easily through a user interface. (MCI Brief & Proposed Order at 18, citing Wood, Tr. 1309.) Each of the inputs to the model and the basis for selecting the default values were described in the Hatfield Model Inputs Portfolio, attached to Mr. Wood's Direct Testimony as AT&T/MCI Joint Hearing Exhibit 3. Its results can be reproduced, all inputs and calculations can be directly reviewed by the user, and complete documentation was provided describing the basis for the model inputs. (MCI Brief at 35.)

MCI and several other intervenors criticized BellSouth's cost studies because they rely upon cost models that proprietary, in whole or in part, and thus not open to public scrutiny. This means, among other things, that a person reviewing the model cannot reproduce the results. (Wood testimony, Tr. 1359.) As a result, MCI pointed out, it is impossible to test the BellSouth loop model or to conduct a sensitivity analysis of its primary inputs. (MCI Brief at 33.) BellSouth's

methodology also relied upon the Switched Network Calculator ("SNC") and Switching Cost Information System ("SCIS"), which are intertwined so that they relate directly to one another; if one produces wrong results, so will the other. (MCI Brief at 33, citing Tr. 674-75.) These switching models are "closed" even tighter than the loop model, on the basis of protecting vendor proprietary information and the value of the model to BellCore for licensing purposes. The calculations and the important inputs and assumptions are hidden from the user. A proprietary version of BellSouth's SNC model, used to calculate its switching costs, does not allow the user to change key inputs. MCI stated that a similar situation was present in BellSouth's shared and common cost model, that key inputs were locked and could not be changed. (MCI Brief at 33-34.)

BellSouth cited a report by Arthur Anderson & Company to support the accuracy of the switching models it used. BellSouth witness Zarakas of Theodore Barry & Associates testified regarding his firm's review of BellSouth's application of SNC and SCIS in this case. MCI charged, however, that Mr. Zarakas relied heavily on the Arthur Anderson report for his evaluation, and that Arthur Anderson's work did not constitute an "audit." Nor was it a technical engineering review of equipment prices or capabilities. (MCI Brief at 34, citing Tr. 677-79, 681.) BellSouth did not submit the Arthur Anderson report as evidence in the record of this case.

Low Tech Designs, Inc. ("LTD") charged that the BellSouth cost studies failed to meet appropriate requirements because certain assumptions were "deeply embedded" in the cost study and not susceptible to easy modification. Consequently, LTD argued, the parties were not able to analyze adequately BellSouth's Advanced Intelligent Network ("AIN") cost studies. LTD stated that AIN capabilities are critical to differentiation of telecommunications services between carriers, and criticized BellSouth as not offering LTD the ability, via mediation, to interconnect third-party AIN SCPs or Intelligent Peripherals. LTD particularly recommended adoption of the AIN query cost proposed by AT&T witness Wayne Ellison. (LTD Brief at 2-3.)

BellSouth witness Varner criticized the Hatfield Model's scorched node assumption as a "start from scratch" approach that assumes technology never changes, no uncertainty exists, and no firm ever makes an investment without correctly predicting the future. According to Mr. Varner, basing prices on a hypothetical, idealized network would mean that every time a new cost-reducing technology is developed, BellSouth must reduce its price to that level even though its existing network isn't being modified to use it. (Varner Rebuttal at 11.)

BellSouth argued that the Hatfield cost studies bear no relationship to BellSouth's existing network, forward-looking or otherwise. According to BellSouth, because it is a hypothetical network belonging to a hypothetical carrier, the Hatfield Model severely underestimates the costs BellSouth will incur to provide service, no matter how efficiently it operates. BellSouth then questioned whether any savings from artificially low UNE prices would be passed on to the CLECs' customers. BellSouth concluded that setting UNE and interconnection prices below BellSouth's costs of providing service on a "going forward basis" would be unsound as a matter of public policy because it would: (1) provide an unwarranted subsidy to BellSouth's competitors; (2) destroy an incentive

for facilities-based competition; and (3) impose unwarranted business risks on BellSouth without offering any corresponding compensation. According to BellSouth, all of these factors weigh in favor of setting rates for UNEs and interconnection that fairly compensate BellSouth for the reasonable costs it will actually incur in providing service to CLECs, and this is consistent with the Commission's duty to ensure just and reasonable rates. (BellSouth Brief at 4-6, 23-26.) BellSouth also argued that Section 252(d)(1)(A)(ii) prohibits certain ratemaking methods, *i.e.*, traditional rate-of-return or rate base proceedings, but that it does not prohibit consideration of a company's actual or embedded costs. (BellSouth Brief at 9-11.)

BellSouth submitted various criticisms of the Hatfield Model relating to its data inputs, assumptions, methodological approach, differing versions, and results. (BellSouth Brief at 14-17.) BellSouth also criticized the intervenors' cost studies to the extent that they are premised upon BellSouth providing loop-port combinations that should be recognized as resale. (BellSouth Brief at 17-21.) BellSouth further repeated its criticism that the Hatfield Model determines the cost of UNEs and interconnection with little regard to the real-world experience of an efficient provider in the local exchange market. As BellSouth put it, the Hatfield Model's hypothetical provider comes into existence in a "snapshot" fashion with little history, and is assumed to be able to serve the entire current volume of demand for a network element even though no separate market for it exists today. With this level of demand, the Hatfield Model attempts to construct a network that recognizes current wire center locations but builds essentially every other aspect of the network from scratch, in one fell swoop. (BellSouth Brief at 21.)

MFS Communications Company, Inc. and WorldCom, Inc. (collectively "WorldCom") urged the Commission to reject BellSouth's loop cost study, and instead price loops with the same cost model that the Commission will use to establish Georgia's eligibility for federal universal service support, under rules of the FCC. (WorldCom Brief at 1, 2-5.) WorldCom premised its position on asserted inadequacies of BellSouth's study and the need to deal with loop costs, among other costs, in upcoming universal service proceedings. WorldCom stated that embedded costs which were incurred piecemeal do not recognize the kind of volume discount to which BellSouth would be entitled if it were reconstructing its network with a "scorched node" approach, which it asserted TELRIC requires; and added that BellSouth's embedded cable costs in the study and in the proposed RRR charge were based on purchasing much smaller size cable, for piecemeal installation, than BellSouth would buy when reconstructing its network. Finally, WorldCom stated that BellSouth's embedded costs do not reflect modern network design principles that tend to emphasize cost-saving techniques. (WorldCom Brief at 5, 7-10.)

The Staff recommended the adoption of BellSouth's approach of using the existing network configuration and making adjustments to reflect the costs of forward-looking technology. This approach recognizes BellSouth's existing network configuration, while recalculating the associated costs in order to reflect forward-looking costs. While the Staff recommended other adjustments to BellSouth's cost studies, the Staff agreed with BellSouth regarding this major assumption of the cost model methodology. The Staff also noted that the Hatfield model assumes the ability of CLECs to

recombine unbundled network elements in a manner that contradicts the Commission's previously decided policy, although the primary basis for the Staff's recommendation was that it is more reasonable to accept BellSouth's existing network configuration than to rebuild the network essentially overnight. The populations to be served grew over time as did BellSouth's network. Thus the Staff accepted the existing configuration, but repriced its costs in order to be forward-looking.[8]

Discussion

The Commission finds and concludes that the Staff's recommendation is reasonable. This will result in use of BellSouth's existing network configuration, while repricing its costs in order to be forward-looking. The Hatfield Model, by contrast with BellSouth's approach, ignores that BellSouth's network typically grows in discrete increments to meet demand growth as it materializes. The Commission is sensitive to the need for open models subject to public scrutiny, and does not intend to endorse the proprietary nature of BellSouth's models. The Commission adopts the Staff's recommendation because it is a reasonable approach that will result in reasonable rates.

The Commission does not reach any decision regarding whether BellSouth's assertions regarding proprietary aspects of the models are based upon valid trade secret claims as defined in O.C.G.A. § 10-1-76(4) and thus protectable from public disclosure under the Georgia Open Records Act, O.C.G.A. §§ 50-18-70 et seq., and the Commission's Rule 515-3-1-.11. The Commission has previously expressed concern (*e.g.*, Order Ruling on Arbitration at 12, November 8, 1996, Docket No. 6759-U) that cost models used as evidence for Commission decisions should be as open as possible. When a particular scientific procedure or technique is challenged, the decision-making body makes a determination whether the procedure or technique in question has reached a scientific stage of verifiable certainty, based upon evidence, expert testimony, treatises, or the rationale of cases in other jurisdictions. Orkin Exterminating Co. v. McIntosh, 215 Ga. App. 587, 452 S.E.2d 159 (1994).[9] At the same time, the Commission is not bound by the strict rules of evidence, and may exercise such discretion as will facilitate its efforts to ascertain the facts bearing upon the right and justice of the matters before it. O.C.G.A. § 46-2-51. Although BellSouth's models are not fully open, BellSouth has afforded more discovery and review of various aspects of them than it previously afforded to other parties. At the same time, it remains evident that openness and availability for public scrutiny can only benefit the process of reviewing cost models and determining costs. In this case, the issue of openness of the models is not dispositive and instead, the Commission adopts its approach on the basis of the fundamental theoretical difference between "scorched node" and BellSouth's assumption of the existing network configuration.

---

[8] BellSouth also repriced its network to develop forward-looking costs, but as discussed later, the Staff made additional adjustments to develop the most appropriate cost factors which this Commission has adopted.

[9] *See also* Hubbard v. State, 207 Ga. App. 703, 429 S.E.2d 123 (1993); and "Exiting the Twilight Zone: Changes in the Standard for Admissibility of Scientific Evidence in Georgia," 10 Ga. St. U. L. Rev. 401 (1994).

The Commission does not endorse BellSouth's citation of traditional rate-of-return analysis in support of the BellSouth cost methodology approach. *See, e.g., Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591, 603 (1949); *Bluefield Waterworks & Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679, 692-693 (1923). While these cases may provide useful insight into the cost of capital to be applied for cost-based rates, as discussed later in this order, they involved traditional rate-of-return or rate base regulation that has been explicitly superseded pursuant to Section 252(d). While overarching constitutional principles remain in place to prohibit confiscation, the traditional rate-of-return analysis must yield to an approach consistent with a competitive environment. Moreover, BellSouth has explicitly elected alternative regulation under the Georgia Act, O.C.G.A. § 46-5-161 *et seq.*, in lieu of traditional regulation.

The Commission concludes that Section 252(d) does not preclude consideration of BellSouth's existing network configuration. Section 252(d) does not prohibit consideration of BellSouth's actual costs, and it also does not prohibit repricing the network in order to reflect forward-looking costs. Indeed, since Section 252(d)(1)(A)(ii) proscribes traditional rate-of-return or rate base methodologies, it certainly supports moving away from traditional recovery of all embedded costs. The fundamental BellSouth approach of determining the actual costs on a going-forward basis is reasonable under both Section 252(d) and under the Georgia Act, O.C.G.A. §§ 46-5-161 *et seq.*, 46-5-165. While the Hatfield approach urged by AT&T, MCI, and other intervenors may be sustainable under these statutory provisions, the Commission finds and concludes that the Staff approach of using the BellSouth methodology with further improvements in the cost adjustments is the most appropriate in this proceeding, will meet the statutory requirements, and will result in just, reasonable, and nondiscriminatory rates. In this sense, and given that the choice of inputs has more impact on the results than the choice of the model, the Commission concludes that the end result of cost-based rates is ultimately more important than strict adherence to a particular methodology.

2. BellSouth's Proposed "Residual Recovery Requirement"

BellSouth proposed a "Residual Recovery Requirement" ("RRR") factor as a surcharge to its TELRIC calculated costs for loops and local switching. The purpose of this RRR factor is to recover BellSouth's embedded costs, by adding the surcharge for the difference between forward-looking and embedded costs. BellSouth witness Caldwell described the RRR as a cost additive to reflect the differences between the "theoretical cost" and the "actual cost" of the unbundled network element (UNE). (Caldwell Direct (Panel) at 42.)

BellSouth contended that pricing that is completely forward-looking will not provide BellSouth with a reasonable opportunity to recover its investment in the plant and equipment currently in place and that will be used to provide service to customers. Thus BellSouth characterized the RRR as "the difference between what BellSouth would recover under a pure TELRIC price of a loop and port and the amount necessary to allow BellSouth to recover all of its embedded investment in the loop and port." (BellSouth Brief at 34.) BellSouth argued that nothing in the 1996 Act prohibits the consideration or recovery of "embedded," "sunk," "stranded" or "actual" costs. (*Id.*)

Indeed, BellSouth argued that not allowing the RRR would be a confiscation of BellSouth's property contrary to the Amendments V and XIV of the U.S. Constitution and Article I, Section 3, Paragraph 1 of the Georgia Constitution; citing also *FCC v. Florida Power Corp.*, 480 U.S. 245, 253, 107 S.Ct. 1107, 94 L.Ed.2d 282 (1987); *Provident Mutual Life Ins. Co. v. City of Atlanta*, 864 F. Supp. 1274, 1282 (N.D. Ga. 1994).

The Consumers' Utility Counsel pointed out that BellSouth approaches this docket from a seller's perspective, and begs the question: How would a CLEC building its own forward-looking network incur any historical costs? In addition, BellSouth's historical costs, when added to the TELRIC of UNEs, are such that competition in local exchange service would be unlikely if the total prices thus proposed were adopted. It does not follow, contended the CUC, from a policy perspective that CLECs should pay for BellSouth's historical costs. (CUC Brief at 10.) The CUC has always supported the concept of long-run incremental cost ("LRIC") and was an early supporter of total services long-run incremental cost ("TSLRIC"), upon which the FCC relied in developing the concept of TELRIC. Accordingly, the CUC cannot and does not support the RRR urged by BellSouth, or any embedded cost characteristics that BellSouth's models may contain. (CUC Brief at 10-11.)

AT&T witness Ellison criticized BellSouth's RRR proposal, pointing out that in the past and in other proceedings BellSouth has advocated the use of long-run incremental costs ("LRIC") instead of embedded costs to define both the price at which BellSouth is fully compensated and the cost that BellSouth believes should be the basis for interconnection prices. BellSouth has argued before state regulators for the ability to establish various service prices, particularly prices for competitive services, at or below incremental costs. For example, BellSouth sponsored a witness (Frank Kolb) before the Georgia Public Service Commission in Docket No. 5258-U who supported the use of long run incremental cost as the proper standard in computing a price floor and testing for a subsidy. Mr. Kolb further testified in that proceeding that fully distributed costs are inappropriate for competitive pricing and do not reflect the true economic costs associated with the decision to provide a service, because they do not reflect the current or prospective value of the capital investment used to provide the service, and are misleading because ongoing costs (maintenance, administration and other operating expenses) are not fixed at their past levels, nor are the methods of production unchanging. BellSouth also supported the use of LRIC for interconnection pricing in a March 1995 filing with the European Commission. Mr. Ellison also criticized BellSouth's RRR proposal as being anti-competitive, and testified that inflating the rates charged to new entrants would assure BellSouth of retaining its monopoly hold on a large proportion of Georgia consumers for years to come. (Ellison Supplemental-Rebuttal at 42-46.)

AT&T and MCI also sponsored witness Wood who explained that BellSouth's proposed Residual Recovery Requirement is a purely embedded cost component. (Wood Supplemental-Rebuttal at 35.) According to Mr. Wood, the RRR has three meanings in this proceeding: one conceptual, one practical, and one strategic. If BellSouth's TELRIC figures represent forward-looking economic costs (which Mr. Wood disputed), the RRR would quantify the amount by which

BellSouth's current costs exceed the costs that would be incurred by an efficient carrier serving the same geographic area. The practical meaning of the RRR is that it automatically ensures that all of BellSouth's historic costs are recovered (*i.e.* ensures that BellSouth is "made whole," even though it is no longer subject to traditional rate-of-return regulation in the traditional monopoly environment), and renders moot all of the loop and switch port cost studies that BellSouth presented. For example, BellSouth's proposed rate including the RRR was $25.28; and if the TELRIC portion of this were adjusted downward by $2.00, the RRR would automatically increase by $2.00 to compensate, so BellSouth's proposed rate would remain $25.28. (Wood Supplemental-Rebuttal at 36-40.)

Not least significant, Mr. Wood explained that the strategic aspect of the RRR is its proposed application only to the local loop and port elements (*see* BellSouth witness Caldwell Direct at 42). As Mr. Wood testified, this would make the RRR a tool for developing discriminatory rates in violation of Section 252(d)(1) of the 1996 Act. While BellSouth witness Ms. Caldwell stated that the loop and switching port elements comprise only 70 percent of the costs used to develop the RRR and the remaining 30 percent was created by other network elements, no part of the RRR was applied to such other network elements. Mr. Wood concluded that allowing the RRR would therefore have the additional unfortunate impact of providing BellSouth with additional monopoly power to extract unduly high prices for the essential loop and switch port elements from its competitors. (Wood Supplemental-Rebuttal at 41-42.)

AT&T/MCI witness Dr. Cabe testified regarding the basic economic underpinnings to the pricing standards of the Act. He stated that the requirement that the prices be "based on the cost (determined without reference to a rate-of-return or other rate-based proceeding)" should be interpreted to mean that prices should recover efficient economic costs, and nothing more. MCI argued that to do otherwise would create a barrier to entry in Georgia for companies who would compete in the local exchange markets, and that Dr. Cabe's testimony on this point was unrebutted. (MCI Brief & Proposed Order at 9, citing Cabe, Tr. 1581.)

The GPCA argued that historical costs should not be included in the rates for UNEs, and that the objective of any methodology should be to determine the rate at which BellSouth will be compensated for the costs that would be incurred by an efficient provider. The GPCA urged that the goal of this docket should not be to make BellSouth "whole," "whatever that may mean." (GPCA Brief at 2.) The GPCA stated that rates may be sufficient to recover direct costs, but may not allow recovery of more than an appropriate level of overhead costs or include historical pricing methodologies. The GPCA concluded that BellSouth's cost study did not satisfy the appropriate cost criteria, and that BellSouth should be allowed to recover TELRIC costs and nothing more. (GPCA Brief at 2.)

WorldCom also criticized the proposed RRR, stating that BellSouth should not recover embedded costs because they do not recognize the generally declining costs of technology that lead to lower costs of fiber optic cable and loop electronics, or forward-looking productivity. WorldCom

stated that BellSouth should have applied a factor for declining cost characteristics, and a forward-looking productivity factor. (WorldCom Brief at 5-6, citing Porter Testimony at 5-7)

Consistent with the forward-looking approach, the Staff recommended against allowing BellSouth's proposed Residual Recovery Requirement (RRR) because the RRR would cause the forward-looking prices to revert back to historical, embedded-cost prices that are conceptually the same as rate of return or rate-based prices.

Discussion

The Commission agrees with the Staff and certain intervenors that allowing BellSouth's proposed Residual Recovery Requirement would run counter to the goal of moving Georgia's telecommunications marketplace toward competition, and would contravene the directive of the 1996 Act at Section 252(d)(1)(A) that UNE prices are to be based on the cost "determined without reference to a rate-of-return or other rate-based proceeding." The proscription in Section 252(d)(1)(A)(ii) against traditional rate-of-return or rate base methodologies certainly supports, if not mandates abandoning the traditional method of establishing rates to recover all embedded costs. The Commission's previous Orders in this docket (December 6, 1996) and in Dockets No. 6415-U/6537-U (September 18, 1996) established a presumption that prices should be based upon TELRIC, as a forward-looking methodology. BellSouth was afforded in this docket an opportunity to show otherwise, but the Commission concludes that the forward-looking TELRIC methodology adopted herein is appropriate under the statutes and reasonable under all the circumstances.[10]

The Commission further concludes that BellSouth is not entitled to claim the RRR in order to be "made whole" under state law either, because BellSouth elected alternative regulation under the Georgia Act. Moreover, the forces of competition as well as the Georgia Act and 1996 Act have rendered traditional monopoly guarantees of embedded cost recovery obsolete. As the U.S. Supreme Court has stated, even the Due Process clause is only applied to prevent "governmental destruction of existing economic values. It has not and cannot be applied to insure values or to restore values that have been lost by the operation of economic forces." *Market Street Railway Co. v. Railroad Commission*, 324 U.S. 548, 567 (1945). BellSouth's proposed RRR would fluctuate in amount, depending upon the forward-looking TELRIC calculation, and simply adds to the TELRIC costs the amount that would result in full recovery of historical, embedded costs. Essentially the RRR would result in BellSouth recovering its embedded costs in a manner consistent with fully distributed costs under traditional rate-of-return or rate base regulation. The way in which BellSouth developed and

---

[10] AT&T's Proposed Order filed October 20, 1997, indicates that AT&T considers the reasonable allocation of forward-looking joint and common costs to be separate from, and additional to, TELRIC costs. AT&T Proposed Order at 6-9. Although the Commission recognizes the basis of AT&T's view, this Commission does not make such a distinction in this case. Accordingly, in adopting a forward-looking TELRIC approach, this Commission also endorses the concept of a reasonable allocation of forward-looking joint and common costs.

proposed the RRR shows that even BellSouth does not consider the associated costs to be part of the forward-looking or economic cost approach under Section 252(d) for establishing cost-based rates for UNEs and interconnection. Thus the RRR falls under the category of values lost by the operation of market forces under the *Market Street Railway* analysis.

It should be noted, similarly, that BellSouth's proposed RRR represents only BellSouth's view of what it would be entitled to recover for its embedded costs. It is a matter of speculation as to whether, had the Commission conducted a traditional rate-of-return or rate base proceeding, the Commission would have agreed with the amount of and rate design for any such embedded cost recovery.

It is a well-established principle of statutory construction under both Georgia law and federal law that words generally bear their usual and common meaning and that the words in a statute should be given their ordinary meaning. *See Ardestani v. Immigration & Naturalization Service*, 502 U.S. 129, 130 (1991); O.C.G.A. § 1-3-1(b). Although Sections 251 and 252 of the Act are clear when read as a whole, it is equally important for the Commission to consider the intent of Congress in discharging its responsibilities under the Act. Although the evidence presented in this docket is quite voluminous, the application of the law to that evidence is not difficult. The pricing standards contained in the Act require that rates be based on cost, but not on historical or embedded costs. If set pursuant to this basic standard, such rates will act to promote competition in Georgia's local exchange market and satisfy the intent of the 1996 Act as well as the pertinent provisions of the Georgia Act.

The Commission does not agree with BellSouth's attempt to argue confiscation under the U.S. and Georgia constitutions. Numerous parties raised similar constitutional concerns in the appeal of the FCC's Interconnection Order. In its opinion on review of that Order, the U.S. Court of Appeals for the Eighth Circuit noted these concerns, but concluded that such claims were not yet ripe for review. *Iowa Utilities Board*, 120 F.2d at 818. There are several reasons why the confiscation argument does not apply to BellSouth's RRR. These include the *Market Street Railway* analysis; the fact that BellSouth is no longer subject to traditional regulation under the Georgia Act, and under Section 252(d); and not least, the fact that recovery of economic costs in UNE, interconnection, and for that matter collocation rates will adequately compensate BellSouth for the services which it must provide to CLECs under the Act.

In addition, the proposal of applying the RRR only to the loop and switch port element would artificially inflate the price of these elements relative to the price of other elements in a way that results in discriminatory rates in violation of Section 252(d)(1) of the 1996 Act. The Commission concludes that allowing BellSouth's RRR (which BellSouth priced at $5.83 for the loop) would artificially inflate the prices that consumers must pay for local exchange services, would create a substantial barrier to entry, and would be discriminatory, contrary to both the 1996 Act and the purpose and letter of the Georgia Act.

B. User-Adjustable Input Assumptions

Each cost study includes major assumptions that can be adjusted. The following subsections of this Order contain discussions of certain major assumptions that have a significant impact upon the resulting UNE rates.

1. Cost of Capital

BellSouth must earn a reasonable return on its investment as a part of recovering the appropriate costs in this proceeding. A reasonable return, often referred to as "profit," should be considered part of the costs that an ILEC should receive because the cost of capital is a necessary part of making the investment that makes the unbundled network elements and other facilities available. Therefore, although BellSouth is no longer subject to traditional "rate of return" regulation, the cost of capital is one of the costs that must be considered in determining cost-based rates in this proceeding. The 1996 Act at Section 252(d)(1) provides that the rates for interconnection of facilities and equipment and for network elements shall be based on the cost, and "may include a reasonable profit." Classic economic theory holds that the cost of providing a good or service must necessarily include a reasonable return in order to enable the investment necessary to carry on the business. "[T]he rate of return includes profit (in the traditional sense), as well as interest on debt capital and dividends on preferred stock."[11]

The Commission must make a determination with respect to the following three items: (1) what is the proper capital structure; (2) what is the proper cost of debt; and (3) what is the proper cost of common equity. In its analysis of the evidence and its determination of the appropriate capital structure, cost of debt and cost of equity the Commission should be guided by the principles set forth by the U.S. Supreme Court in *Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia*, 262 U.S. 679 (1923) and *Federal Power Commission v. Hope Natural Gas Company*, 320 U.S. 602 (1944). Essentially, these cases require that the return on common equity set by the Commission be commensurate with returns on investments and enterprises with similar risks; that the return is adequate to ensure the confidence of the financial markets; and is sufficient to allow the Company to maintain its credit worthiness and to allow it to attract capital as required on reasonable terms.

The U.S. Supreme Court has affirmed these standards in more recent decisions in *Federal Power Commission v. Memphis Light, Gas & Water Division*, 411 U.S. 458 (1973); *Permian Basin Rate Cases*, 390 U.S. 747 (1969); and most recently in *Duquesne Light Company and Pennsylvania Power Company v. Barasch*, 109 U.S. 609 (1989). Although this case does not involve traditional rate-of-return regulation, these standards remain an appropriate reference for purposes of determining cost of capital as a part of cost-based rates.

---

[11] Charles F. Phillips, Jr., *The Regulation of Public Utilities* (3rd Ed., Publ. Util. Rpts. 1993), at 375-376.

In this proceeding, the Commission received the expert testimony of three witnesses relating to the fair and reasonable rate of return on common equity. BellSouth's witness, Dr. Billingsly, did not submit direct testimony but did submit rebuttal testimony to the direct testimony of the other two witnesses, Dr. Cornell on behalf of AT&T/MCI, and Dr. Legler on behalf of the Staff. In his rebuttal testimony, Dr. Billingsly also testified to the reasonableness of the Company's proposed cost of capital including the cost of common equity, essentially presenting the Company's affirmative showing in this area. All of these financial experts presented detailed explanations of several methodological approaches to the determination of the cost of equity.

All three of the expert witnesses applied in various ways the three financial models generally found acceptable by the Commission over the years. BellSouth witness Billingsly applied the Discounted Cash Flow model, the Capital Asset Pricing Model (CAPM), and the Risk Premium approach. Although Dr. Billingsly set out to confirm the reasonableness of the Company's requested overall return, he concluded that the current cost of equity capital for BellSouth is within a range of 14.83% to 15.28%. His estimates included an adjustment for flotation costs. His DCF model results produced a range from 14.93% to 15.28%; his CAPM analysis produced a range from 14.83% to 14.93%; and his risk premium approach produced a range from 14.29% to 15.15% based on the overall equity market as measured by the Standard & Poor's 500 Index. (Billingsly Testimony, page 4, lines 10-21)

AT&T/MCI witness Cornell applied the DCF method and the CAPM method. Dr. Cornell estimated the cost of equity to be in a range from 10.64% to 11.05%. From this range he selected the midpoint, 10.85%, as his recommended cost of equity. His overall range reflects the midpoints of his estimates of the financial models. The actual DCF range was 8.56% to 11.91%. (Cornell Testimony, page 14, line 20), and the CAPM range was 10.97% to 11.14%. The Staff submits finds that it would be more accurate to characterize Dr. Cornell's range as from 8.56% to 11.14%, somewhat broader than he suggests.

Staff witness Legler utilized a Discounted Cash Flow analysis, a Risk Premium analysis, and a Capital Asset Pricing Model analysis. Dr. Legler recommended a cost of common equity of 11.3%, the midpoint of his range of 10.3% to 12.2%. Dr. Legler updated his original estimates in his rebuttal testimony filed on August 29, 1997. In contrast to Dr. Billingsly, Dr. Legler recommended that no flotation cost adjustment be applied. Dr. Legler applied the financial models to data for BellSouth, the Bell Regional Holding Companies, and a group of independent telecommunication companies. He reported his results for these groups of companies, and found considerably broader ranges of estimates than his recommendation would imply.

BellSouth asserted that the reference in 47 U.S.C. § 252(d)(1)(B) to a "reasonable profit" means a profit that is over and above the recovery of all costs, including the cost of capital. However, BellSouth stated, it has not specifically sought a profit in addition to its cost of capital. (BellSouth Brief at 52.) BellSouth stated that it accepted the FCC's "suggestion" at Paragraph 702 of Order 96-325 that the currently authorized rate of return at the federal or state level is a reasonable

starting point for TELRIC calculations, and thus based its cost studies on the currently authorized FCC return on investment of 11.25 percent. Based on a capital structure of 40 percent debt and 60 percent equity, this would translate to a return on equity of 13.42 percent and a cost of debt of 8 percent. (BellSouth Brief at 52.)

Discussion

The Commission adopts the cost of capital presented by Staff witness Dr. John B. Legler in this proceeding, including the mid-point of the range he presented for the cost of equity capital. Dr. Legler's analysis was forward-looking and took account of the changing risks in the increasingly competitive telecommunications marketplace in Georgia. Dr. Legler's analysis assessed investor expectations for telecommunications companies in general, and BellSouth in particular, in the current environment of increasing deregulation and competition. This market-determined approach incorporating investor expectations thus reflects investors' forward-looking requirements for return on equity capital.

The Commission does not accept BellSouth's assertion that the "reasonable profit" referred to in 47 U.S.C. § 252(d)(1)(B) means a profit over and above the costs including cost of capital. While this point may be moot since BellSouth did not seek such an explicit additional profit, the Commission notes that BellSouth's interpretation would run counter to established pricing principles that the reasonable profit is incorporated within the concept of cost of capital, precisely because that is the profit expected by investors - the "cost" to be covered - in return for committing capital.

The U.S. Supreme Court has made it clear that the setting of just and reasonable rates involves a balancing of the interests of investors and ratepayers. *Hope*, *supra*, 320 U.S. at 603. While these standards were established in the days of "traditional" ratemaking, they are still appropriate for a case such as this wherein the Commission must assess the appropriate return as a part of BellSouth's costs. The cost of debt and the cost of equity generally move in the same direction, though not necessarily in lock-step. The financial models employed by the expert witnesses are helpful in making the necessary determinations, but the results of these models must be tempered with reason and informed judgment. In this regard, the Commission must use its own expertise in judging the credibility and reliability of the testimony presented by the witnesses, and exercise its own expertise in evaluating the financial climate.

The Cost of Common Equity

As the Consumers' Utility Counsel succinctly put it, the question regarding cost of equity is how much the company must earn in order to induce investors to hold and to continue to buy its common stock. Although the Commission should not adhere to one particular theory or methodological application to determine the cost of equity, it should test the estimates and recommendations presented to it against the standards discussed above to determine the reasonableness of the approaches used by the witnesses. With these standards in mind, the

Commission may carry out its responsibilities to engage in a careful analysis of the evidence regarding the cost of equity.

The financial models were applied in different ways. For example, Dr. Cornell used a multi-stage version of the DCF model. While the multi-stage version of the DCF model has an apparent advantage in the degree of sophistication, ultimately judgment must be used in selecting the required growth rates. The Commission finds that this version of the model does not necessarily produce superior results compared to the more simple version of the model, nor is there less subjectivity in the selection of the growth rates. The Commission also notes that Dr. Billingsly used a version of the DCF model which takes into consideration the quarterly timing of dividend payments. Using the quarterly version of the DCF model will produce higher estimates of the cost of equity. However, it is not necessary for ratepayers, or in this case purchasers of services, to be required to provide that added or incremental return. Shareholders can obtain this increment to the return simply by investing the dividends they receive.

The Commission finds that Dr. Legler's recommended range is the result of sound judgment that reflects a forward-looking approach rather than the arithmetic averaging technique favored by the other witnesses. Having thoroughly reviewed the testimony of the witnesses, the Commission finds that the differences in the recommendations are based largely on the comparison or proxy groups chosen by the witnesses in the application of the financial models. Dr. Cornell and Dr. Legler chose to use telephone companies in their analyses. Dr. Billingsly chose to use a group of 20 companies from a population of 390 firms in his analysis. Dr. Billingsly used a method known as cluster analysis to select this group of companies. Dr. Billingsly stated that as a portfolio or group of companies, he believed that the group was of comparable risk to BellSouth. He acknowledged that individually the companies were not comparable in riskiness to BellSouth. But based on the measures of risk that he chose to use, these were the 20 companies closest in riskiness to BellSouth. No company could be substituted for one of the twenty and make the group more comparable. Therefore, these companies must be close to one another's riskiness. Companies comparable in riskiness should have reasonably comparable expected returns. But as shown on Exhibit No. RSB-3 of Dr. Billingsly's testimony, the individual results for the companies are not comparable or closely grouped around the averages he reports. The results based on ZACKS growth rates range from 11.61% for Chevron to 20.22% for Motorola. The Staff agreed with Dr. Cornell's statement that if we "were to accept the results of his cluster analysis, then one would have to believe that the risk of the network element leasing business was more similar to the risks faced by Coca Cola, McDonalds and WalMart stores, as examples, than to the risks faced by BellSouth's parent company BellSouth (which owns LEC's and the underlying network elements)." (Cornell, Surrebuttal Testimony, page 2, lines 13-17). The Staff disagreed with Dr. Billingsly's assertion that Dr. Cornell's and Dr. Legler's surrogates or proxies are inappropriate, and submitted in this case that telecommunications companies are a better comparison group to BellSouth than the group of predominately non-utility companies used by Dr. Billingsly.

Some of the testimony touched on "flotation cost" as being a factor to include in the cost of equity calculations. Flotation costs are such items as stock underwriting fees. The Consumers' Utility Counsel agreed with Staff witness Legler that if no new stock is issued, as has been the case with BellSouth since 1984, and none is planned, then no flotation factor is relevant. (CUC Brief at 34, citing Legler Direct at 42.) Further, the CUC pointed out, BellSouth is planning to eliminate stock through a billion dollar repurchase, thereby actually reducing the current float; and there is no reason to suggest than an equity issue will be made in the foreseeable future. (CUC Brief at 34.)

Based on all of the evidence on the record, the Commission adopts the recommendations of Staff witness Dr. Legler regarding the cost of common equity for BellSouth. Dr. Legler used two basic methods to estimate BellSouth Telecommunication's cost of equity capital: (1) applications of finance theory; and (2) the comparable earnings approach. Contrary to the CUC's suggestions (CUC Brief at 33-34), Dr. Legler's approach was inherently forward-looking and did not simply calculate an embedded or historical equity cost. In performing his analysis, Dr. Legler used three financial models acceptable to the Commission: the Discounted Cash Flow method; the Risk Premium method; and the CAPM. In applying these models, Dr. Legler used financial data for BellSouth, the Bell Regional Holding Companies, and a group of independent telephone companies. Based on these analyses, he recommended a range for the cost of common equity from 10.3% to 12.2%, with a midpoint of 11.3%. Dr. Legler recommended that the midpoint be used for purposes of calculating the overall cost of capital.

The Commission concludes that as a matter of fact, law, and regulatory policy, the Staff's recommendations regarding BellSouth's return on equity capital are reasonable, appropriate, reflect a forward-looking approach and will allow BellSouth the opportunity to earn a fair, just and reasonable return on equity for purposes of establishing cost-based rates in this proceeding. Therefore, the Commission adopts Dr. Legler's recommended midpoint of 11.3% as the Commission-authorized return on (*i.e.*, cost of) equity capital for purposes of computing the costs in this proceeding.

Cost of Debt

The Commission finds that the cost of debt should be consistent with the capital structure (discussed below). BellSouth's embedded cost of debt as of June 30, 1997 was 6.44%. The Consumers' Utility Counsel suggested that a forward-looking analysis should use only the current or most recent yield for BellSouth's bonds, rather than the embedded cost of debt. (CUC Brief at 32-33.) BellSouth claimed that the current forward-looking cost of debt would be at least 7.50%. (Billingsly Testimony, page 5, lines 12-13.)

However, singling out the current or most recent debt will not necessarily be the best forecast for forward-looking debt costs, since the cost of debt can be expected to vary over future years. BellSouth's current embedded cost of debt reflects a range of debt costs over time, so it represents a reasonable proxy for a range of debt costs over future years. From another point of view, it does

not appear necessary for BellSouth to issue new long-term debt in the amount implied by the adopted capital structure to finance the subject assets. Accordingly, any cost rate authorized in excess of the actual embedded cost of debt would flow to equity and increase the return to common equity. The Commission agrees with its Staff that this would not be just or reasonable, and concludes that the appropriate cost of debt to apply in this proceeding is the Company's current rate of 6.44%. The Commission notes that BellSouth's witness Dr. Billingsly used this rate in one of his tests of the reasonableness of the overall requested return of 11.25%. (Billingsly Testimony, page 5, lines 5-10.)

Capital Structure

The Commission recognizes that BellSouth's capital structure has reflected an increasing equity ratio over the last several years, which generally tends to increase the overall cost of capital, but there is no evidence that BellSouth has taken explicit actions to effect this change. For example, BellSouth has not issued additional common equity to increase the ratio represented by equity over debt. Furthermore, BellSouth did not seek to have market-based ratios used as a substitute for book values. The CUC suggested (CUC Brief at 34) that Staff witness Dr. Legler's use of BellSouth's current capital structure was consistent with an embedded cost approach, rather than a forward-looking approach. However, even if such a contention were theoretically valid, there is no clear evidence of how a forward-looking capital structure would vary from the current capital structure.

Based on the thorough review in this record, the Commission concludes that it is appropriate to use the most recent available actual capital structure, and finds that this capital structure adequately reflects what is likely to be a forward-looking capital structure. The Commission therefore adopts BellSouth's actual capital structure as of June 30, 1997, consisting of 41.68% debt and 58.32% equity, for purposes of calculating the weighted average cost of capital for this proceeding.

The Overall Cost of Capital

Using the Commission's conclusions, the overall rate of return is derived as computed in the following table:

	OVERALL RATE OF RETURN		
	Ratio (%)	Cost (%)	Cost (%)
Long-Term Debt	41.68%	6.44%	2.68%
Common Equity	58.32%	11.30%	6.59%
Total	100.00%		9.27%

Therefore the overall rate of return for computing costs in this proceeding is 9.27%.[12]

[12] This has the effect, by way of example, of reducing BellSouth's proposed 2-wire analog loop recurring (monthly) rate by $1.81. These decreases in rates are stand-alone adjustments. This means that when

2. Depreciation

Depreciation expense is one of the major costs that must be considered in establishing the cost-based rates in this proceeding. Both of the cost models presented by the parties contain assumptions regarding depreciation expense, which in turn is a function of the length of the plant lives. The longer the plant life, the lower the depreciation rate and the lower the depreciation expense per year that is factored into the cost methodology.

AT&T and MCI submitted testimony recommending use of the projection lives underlying the depreciation rates prescribed by the FCC in its 1995 prescription of depreciation lives for BellSouth in Georgia. Further, their testimony stated that the FCC required that only forward-looking costs be used in the setting of plant lives and the calculation of costs must be based upon the expected economic lives of newly placed plant. The Staff stated that the FCC used statistical studies of the most recent prescribed factors and each carrier's most recent retirement patterns, carriers' plans, and current technological developments and trends. The FCC staff always used a forward-looking approach to setting depreciation rates and rarely uses historical data.

AT&T/MCI witness Majoris recommended the use of regional economic lives consistent with depreciation lives used for public reporting purposes. MCI noted that these financial book lives are conservatively biased to protect shareholders, not the interest of ratepayers. (MCI Brief & Proposed Order at 20, citing Majoris Direct at 12-13.) The Hatfield Model used projection lives and future net salvage percent prescribed for BellSouth in Georgia in 1993 by the FCC. MCI stated that the FCC's projection lives are of a forward-looking nature as confirmed by empirical tests. (*Id.*) These depreciation rates are also specific to Georgia.

BellSouth proposed depreciation lives consistent with those it uses for public reporting purposes and regulatory reporting in Georgia. (Caldwell/Zarakas Direct at 9.) The proposed lives used in BellSouth's TELRIC cost studies were based on BellSouth's 1995 and 1996 Depreciation Studies, which contain detailed explanations of methodology, data, and analysis that BellSouth contended support the asset lives and other depreciation parameters presented in the studies. (BellSouth Brief at 50, citing Cunningham Rebuttal at 6-8 and attached Depreciation Studies.) BellSouth claimed that the FCC depreciation lives for establishing depreciation rates are too long and anti-competitive because actual lives are shorter than those prescribed by the FCC and do not allow BellSouth to recover its investment. BellSouth further claimed that the FCC lives are too long because of normal equipment mortality, and that the FCC has not looked forward enough to properly assess the impact of technological evolution and increasing competition to determine appropriate

---

each adjustment is made singly (on a stand-alone basis) to BellSouth's study, it has the stated effect. However, when all the adjustments are made, the interactive effect results in a total unified adjustment that is different from the mere addition of the stand-alone adjustments. For example, the cost of capital adjustment itself tends to reduce the effect of all other stand-alone adjustments because it reduces the overall return associated with the capital investment portion of costs.

forward-looking lives. Finally BellSouth claimed that because of the Georgia Act at O.C.G.A. § 46-5-169(8), it is able to establish its own depreciation rates. (BellSouth Brief at 49-52.)

AT&T asserted that BellSouth's depreciation rates are not state-specific, would recover BellSouth's investment faster than a competitive market would permit, and thus would be discriminatory. AT&T/MCI witness Majoros testified that over a decade ago, the FCC directed its staff to put less emphasis on historic data in estimating productive lives, and to pay "closer attention to company plans, technological developments and other future-oriented analyses."[13] Recently, he added, the FCC reaffirmed its forward-looking orientation in connection with the simplification of its depreciation represcription practices.[14] Mr. Majoros also analyzed and presented evidence showing that the FCC's projection lives for depreciation have been forward-looking. (Majoros Direct at 4-7.)

Mr. Majoros also compared BellSouth-Georgia historical lives and retirement patterns to the FCC-prescribed lives and retirement patterns for the major accounts. He found that the FCC's prescribed projection lives are generally much shorter than the recent historical indications. Additionally, the FCC's prescribed retirement patterns are much more accelerated than indicated by recent historical experience. He concluded that the FCC's prescribed lives and retirement patterns as set forth in the FCC's most recent prescription of BellSouth-Georgia's depreciation rates are forward-looking, and recommended their use in this proceeding. (Majoros Direct at 8-9.)

The Staff recommended that for purposes of the assumptions contained in the cost studies in this proceeding, the Commission use the plant lives and depreciation rates as prescribed by the FCC for BellSouth's operations in Georgia. The Staff stated that these should be appropriate for the cost study methodology and model assumptions, unless and until such time as the FCC enters into any new rulemaking on the matter. The FCC is fully aware of the increasingly competitive telecommunications marketplace, as evidenced by the FCC's First Report and Order in the interconnection docket (CC Docket 96-98) dated August 1996, which followed lengthy proceedings. Certainly the 1996 Act, which was enacted in early 1996, was preceded by lengthy Congressional proceedings and much public discussion which included the FCC. Therefore the depreciation rates developed by the FCC for its 1995 proceedings included consideration of the increasingly competitive market. In addition, the FCC's orders and the evidence presented in this case show that the FCC-prescribed lives and rates are forward-looking and are reasonable for use in the cost studies in this proceeding. The Staff's recommendation has the effect of reducing BellSouth's proposed 2-wire analog loop recurring (monthly) rate by $0.94.

---

[13] *Report on Telephone Industry Depreciation, Tax and Capital/Expense Policy*, Accounting and Audits Division, FCC (April 15, 1987) ("AAD Report") at 8.

[14] *In re Simplification of the Depreciation Prescription Process*, CC Docket No. 92-296 ("Prescription Simplification" proceeding), Third Report and Order (Order 95-181, May 4, 1995) at 6.

Discussion

For purposes of the assumptions contained in the cost studies in this proceeding, the Commission will use the plant lives and depreciation rates as prescribed by the FCC for BellSouth's operations in Georgia. These are appropriate for the cost study methodology and model assumptions, unless and until such time as the FCC enters into any new rulemaking on the matter. The FCC is fully aware of the increasingly competitive telecommunications marketplace, as evidenced by many FCC orders in recent years including the FCC's First Report and Order in the local competition docket (CC Docket 96-98) dated August 1996, which followed lengthy proceedings. Certainly the 1996 Act, which was enacted in early 1996, was preceded by lengthy Congressional proceedings and much public discussion which included the FCC. Therefore the depreciation rates developed by the FCC for its 1995 proceedings included consideration of the increasingly competitive market. In addition, the FCC's orders and the evidence presented in this case show that the FCC-prescribed lives and rates are forward-looking and are reasonable for use in the cost studies in this proceeding. This adjustment has the effect of reducing BellSouth's proposed 2-wire analog loop recurring (monthly) rate by $0.94.

While BellSouth is correct that the Georgia Act at O.C.G.A. § 46-5-169(8) provides that a company electing alternative regulation (such as BellSouth) "shall not be required to seek regulatory approval of its depreciation rates or schedules," the Georgia Act does provide at O.C.G.A. § 46-5-168(b)(9) that the Commission has the authority to "[e]stablish reasonable rules and methodologies for performing cost allocations among the services provided by a telecommunications company." The very purpose of this docket is not to direct BellSouth what depreciation rates to use for pricing its retail business, but instead to establish the appropriate cost methodologies to be incorporated in the cost models to set unbundled network costs. Therefore O.C.G.A. § 46-5-168(b)(9) is the appropriate statutory reference under the Georgia Act.

Moreover, the statutory purpose in the Georgia Act for BellSouth not requiring this Commission's approval for depreciation schedules is to permit BellSouth the pricing flexibility afforded by alternative regulation under the Georgia Act for retail services. Alternative regulation, which BellSouth elected in July 1995, provides price caps for basic local services (residential and single-line business) and pricing flexibility for other local services. The Commission no longer has direct rate regulatory authority over those rates and therefore need not issue directives to BellSouth to specify the associated depreciation rates. However, the Georgia Act vests the Commission with new authority to require BellSouth to provide interconnection and unbundling, and if necessary (as in this proceeding) to determine the reasonable rates, terms and conditions. O.C.G.A. § 46-5-164(a), (c), (d) and (g). As a part of this process, the Commission must determine a reasonable cost methodology. Therefore this case does not involve BellSouth obtaining regulatory approval of its depreciation rates or schedules, but does require reasonable assumptions about the depreciation expenses to be included in the cost studies used for setting the rates subject to the Georgia Act and the 1996 Act.

Further, this proceeding is primarily conducted under Sections 251 and 252 of the federal 1996 Act. That Act and the FCC's implementing decision placed the authority and responsibility for selecting the depreciation lives to be used for cost-based rates under Sections 251 and 252 with this Commission.[15]

3. Fill Factors

Feeder and distribution cable fill factors are designed to recover BellSouth's investments in spare feeder and distribution facilities. BellSouth stated that utilization rates and fill factors mean the same thing. With respect to a facility that can support multiple users, these terms refer to the percentage of the facility's total capacity that is being used. The utilization rates and fill factors are important in cost studies because the cost of a facility is divided among the users. The fewer the users, the higher the cost per user. Therefore a higher utilization rate yields a lower cost per user, while a lower utilization rate yields a higher cost per user.

BellSouth contended that it complied with the FCC's directive in Paragraph 683 of FCC Order 96-325 that cost studies be based on "a reasonable projection of actual total usage." BellSouth based its calculations on an average utilization level for materials and equipment required in provisioning UNEs. (BellSouth Brief at 46, citing Caldwell, Tr. 37, 468-473.) BellSouth criticized intervenors for ignoring the projected actual usage and basing their studies on fill at relief levels. Fill at relief levels are the points at which, for engineering planning purposes, that a facility is so full that the company will install another facility. For example, if the fill at relief for a 1000-user switch is 78 percent, a company will plan to install an additional switch when the switch has 780 or more users. BellSouth argued that the fill at relief figures do not represent expected actual usage and should therefore be rejected. (BellSouth Brief at 47.)

BellSouth accounted for such costs in its studies by calculating the direct investment required to provide the feeder and distribution portions of the loop and then increasing the feeder and distribution investments to account for spare, by dividing the calculated direct investment by a utilization factor. For distribution cable, BellSouth used a factor of 43 percent. The 43 percent factor added an additional $1.33 to each directly identified $1.00 of distribution cable investment to account for spare, unused investment. The resulting investment used to compute costs was thus equal to 233 percent of directly identified investment.

AT&T described fill factors as multipliers which increase the investment in transmission facilities that are in use in order to take into account the fact that some spare capacity is needed in those facilities for administrative and maintenance purposes. Spare capacity also results from unavoidable mismatches between demand and available equipment sizes. The greater the spare capacity, the higher the cost. AT&T argued that BellSouth's fill factors are not forward-looking, are not consistent with the principle of cost causation, and would permit BellSouth to overcharge in

---

[15] *See* FCC First Report and Order, ¶ 29.

significant amounts. (AT&T Proposed Order at 22, citing Wood, Supplemental/Rebuttal at 84-85.) AT&T charged that BellSouth provided no support to suggest that its use of unadjusted, historical fill factors represents the same factors an efficient competitor would compute on a going-forward basis. (AT&T Proposed Order at 22, citing Caldwell/Zarakas, Tr. 570.)

As AT&T described it, BellSouth admitted that it uses fill factors reflecting spare capacity for future customers unrelated to the UNEs bearing these costs. (AT&T Proposed Order at 23, citing Caldwell, Tr. 574-75.) Therefore BellSouth's fill factors assume that CLECs purchasing loops to serve existing customers will pay the entire costs of this growth capacity indirectly through the fill factor, and will also pay BellSouth a second time (directly) when the CLECs utilize any of the excess capacity. AT&T charged that this would impair the CLECs' ability to compete on a level playing field, and would result in over recovery from Georgia consumers. (AT&T Proposed Order at 23.)

AT&T witness Ellison criticized BellSouth's utilization factors, including feeder and distribution fill factors. Mr. Ellison testified that reasonable utilization factors are appropriate in order to recover BellSouth's administrative spare and lumpy investment requirements, but that BellSouth derived its utilization factors from inappropriate historical data reflecting not only spare requirements for current capacity but spare placed to meet future service demands. Mr. Ellison joined AT&T witnesses Wood and Dr. Cabe in arguing that this type of factor is inappropriate. Mr. Ellison stated that the extra costs associated with not-yet-used spare capacity should be the responsibility of future demand, not imposed on current demand. He advocated that the Commission require BellSouth to calculate utilization using one of two options: (1) to size a reconstructed network to meet only current demand and then divide by current demand; or (2) to determine unit prices that take the eventual higher demand into account. (Ellison Supplemental-Rebuttal at 36-38.)

AT&T/MCI witness Carter also criticized BellSouth's fill factors for digital loop carrier ("DLC") and multiplexer ("MUX") equipment. He presented a calculation of 79 percent compared to BellSouth's 64.6 percent and 53 percent for DLC and MUX. (Carter Rebuttal at 22-24.) Mr. Carter asserted that based on a 9.3 year life, an annual growth rate of 3 percent and 90 percent fill at relief, the average fill over the life of the DLC housing, hardware and common plug-ins would be 79.4 percent. Alternatively, based on sizing for 10 years' demand, an annual growth rate of 3 percent and 90 percent fill at relief, the average fill over the 10-year period for the DLC housing, hardwire and common plug-ins would be 79.1 percent. These are substantially higher factors than BellSouth's 64.6 and 53 percent used in BellSouth's TELRIC cost study. (Carter Rebuttal at 24.)

MCI stated that the Hatfield Model correctly matched current demand and the size of the network facilities necessary to serve the current demand. According to MCI, where the fill rates result from a comparison of current working lines with total lines placed to serve current demand, an acceptable fill factor results. Similar, a sound fill factor would result from a comparison of a projection of future working lines to total lines placed to serve current and future demand. In both cases, MCI stated, the Commission would be making an apples-to-apples comparison. (MCI Brief & Proposed Order at 13.) The fill factor developed by the engineering team for the Hatfield Model

included some limited amount of spare for growth, so MCI argued that its default fill factor should be considered to represent the low end of an acceptable range, and consequently the cost calculated using these factors should be considered conservatively high. (MCI Brief & Proposed Order at 13, citing Wood, Tr. 1331-1332.)

MCI similarly criticized BellSouth's proposed fill factors as being too low. MCI cited the testimony of AT&T/MCI witness Carter who stated that utilization excluding anticipated growth, or "fill at relief," is the appropriate fill factor for TELRIC calculations. Mr. Carter recommended a "fill at relief' for copper feeder of 90 to 95 percent for assigned copper feeder pairs and 85 to 90 percent based on working pairs. (MCI Brief at 31, citing Tr. 2024.) Further, according to MCI, BellSouth acknowledged that 85 to 90 percent is the appropriate "fill at relief" for copper cables. (MCI Brief at 31, citing Tr. 2035 and BellSouth's response to Staff's Third Set of Data Requests, Item No. STF-3-11.)

WorldCom also contended that the fill factors in BellSouth's study were too low, and stated that principles of efficient network design call for setting the fill factors to provide only as much spare capacity as is needed "to accommodate expected line growth and replace facilities that malfunction (*i.e.*, breakage) over the relevant planning period." (WorldCom Brief at 10, citing Porter Testimony at 13-14; FCC First Report and Order at ¶ 677.) WorldCom endorsed Mr. Porter's testimony that a proper forward-looking fill for copper feeder cable would be 85 percent; and for fiber optic feeder cable, 90 percent. (WorldCom Brief at 11-12, citing Porter Testimony at 15.) Based on Mr. Porter's criticisms of BellSouth's 53 percent fill factor for "plug in" channel units, WorldCom recommended a fill factor for this item of 95 percent to encourage BellSouth to manage channel units in the most cost-effective manner. For DLC cabinets, where BellSouth used a 74 percent fill factor, WorldCom asked the Commission to use Mr. Porter's recommended 90 percent fill factor. (WorldCom Brief at 12-13.)

The Staff recommended moderate increases to the fill factors that BellSouth proposed in its cost study. The Staff recommended increases of 5 percent for both copper feeder and copper distribution, compared to BellSouth's figures. The basis for the Staff's recommendation was that allowing BellSouth's fill factors would result in charging the CLECs too much for the unused capacity in the feeder and distribution cable, which represents inappropriate cost causation and also would have an inhibiting effect on competition. There is evidence that BellSouth's access line growth during 1996 was approximately 1,000,000 in its nine-state region, or roughly 250,000 in Georgia. Such growth indicates that BellSouth's proposed fill factors were somewhat understated. Therefore the Staff recommended 69.5 percent for copper feeder, and 48 percent for copper distribution, while keeping BellSouth's 74 percent for fiber feeder. The effect of the Staff's adjustment on the 2-wire analog loop recurring (monthly) rate was to reduce BellSouth's proposed rate by $0.99.

Discussion

The Commission finds that the parties raised valid concerns that BellSouth's proposed fill factors should be adjusted. To illustrate by way of example, under BellSouth's method, if BellSouth installs a cable costing $100 per month that is intended to serve a current demand of 10 people and a projected future demand of 40 people (50 pairs total), the cost of the cable per pair per intended customer is $2 per month. BellSouth's method would allocate the entire cost of the cable only to the current customers, resulting in charges of $10 per month. Although the $10 per month charge allows recovery of the entire cost of the cable, it also would erect significant barriers to entry by requiring CLECs to purchase UNEs at inflated prices. Every additional pair sold to CLECs would then permit BellSouth to over recover an additional $10 per month above the cable costs; and BellSouth may also use some of the additional pairs to provide services to its own retail customers. CLECs would be forced to pay for plant they do not use, while BellSouth could over recover or could drop its retail price to its own customers below the cost being charged to the CLECs.

The Commission finds that the Staff's recommended increases to BellSouth's fill factors are moderate and reasonable. These increases are 5 percent for both copper feeder and copper distribution, compared to BellSouth's figures. The Commission agrees that allowing BellSouth's fill factors to remain would result in charging the CLECs too much for the unused capacity in the feeder and distribution cable. This represents inappropriate cost causation and would have an inhibiting effect on competition. Therefore the Commission adopts the Staff recommendation of 69.5 percent for copper feeder, 48 percent for copper distribution, and BellSouth's 74 percent for fiber feeder. The effect of this adjustment on the 2-wire analog loop recurring (monthly) rate is to reduce BellSouth's proposed rate by $0.99.

4. Loop Sample

The lengths of the loops, and their types of construction, are major cost drivers. BellSouth used a sample of 400 loops to characterize the composite physical characteristics of all its Georgia loops. The sampled loop characteristics included loop length, typical cable sheath sizes and proportions, structure mix requirements, bridged tap requirement, and feeder/distribution interface location. BellSouth witnesses Caldwell and Zarakas testified to BellSouth's process which indicates the significance of the loop sample in the cost study. (Zarakas and Caldwell Panel at 8-9, 11-12.) BellSouth's Loop Model stores the specific characteristics of an average loop in Georgia, as well as a weighted vendor price table for components in the loop. This model was used to develop the material costs for narrowband loop and loop-related UNEs. (Zarakas and Caldwell Panel at 17.)

BellSouth witness Smith testified regarding the development of the loop sample. (Smith Direct at 4-10.) However, he admitted under cross-examination that although he included all types of loops in collecting his initial sample data, BellSouth omitted several types of loops from the sample it subsequently used for its cost study. The omitted loops included ESSX lines which tend to be substantially shorter than single-line business loops.